disclosure as originally filed.

In the Background of the Invention section, inefficiency of prior art is explained: the fact that calcium tends to drive some of the desirable parts of the medication from the patient's system, the fact that most substance abuse patients have heavily abused gastrointestinal systems unable to efficiently metabolize amino acids, the blood/brain barrier, substance abuse patient's tendency to have damaged livers, and so on.

From the Detailed Disclosure of the Invention section of the application, the third paragraph is reproduced herein and for the examiner's convenience the word "efficient" has been underlined as it is applied to the various barriers to metabolization:

> The medication achieves this by selecting those forms of anti-craving agents which are most usable by a body suffering the disorders pandemic in substance abuse. Such disorders erect several physical barriers to efficient use of normal selections of agents for anti-craving compounds. To list several examples of such physical barriers: the stomach and intestinal linings of substance abusers are often damaged or simply dysfunctional, liver disease is quite prevalent among many types of substance abusers, substance abuse physically deprives the body of necessary nutrients (for example, by overusing the nutrients in the futile attempt to metabolize the abused substances at a rate sufficient to keep pace with the amounts the individual abuses) and psychologically deprives the abuser of the desire to follow proper nutritional guidelines; the poor nutrition endemic in this population then harms the abilities of the body to properly digest food and to utilize these nutrients and to assist the passage of the active agents across the

blood/brain barrier, time factors work against the efficient usage of medications by those with substance abuse problems, and IV administration normally either requires a near instantaneous bolus therapy or else the usage of numerous vials of different medications. Workers serving the needs of patients addicted to substance abuse can see the effects of these barriers to efficient usage of medications -- practical barriers which the highly intelligent researchers exploring the complexities of the neural pleasure/addiction processes may tend to deprecate or even overlook. At the same time, clinical workers tend to value ease of administration and long shelf life of medications and thus tend to favor oral medications or substances which can be injected by means of a short-term bolus under pressure.

Overall, there are no less than seventeen different references throughout the application to barriers to efficient metabolization, combinations of ingredients which offer efficient metabolization and so on. For example, from page 23, line 10: " Thus, the most efficient forms of the anti-craving substances are those which require the least metabolizing and offer the highest effect."

These underlined words are in fact one definition of the word "efficient". There are numerous additional words of definition of the word "efficient" in the detailed disclosure, so the word "efficient" is much more than adequately supported by the detailed disclosure provided.

Thus claim 1 and those claims depending upon claim 1 are in condition for immediate allowance and such action is respectfully requested.

Rejection of claims 2 and 7 under 35 USC 112

The examiner has correctly pointed out that the word "barrier" has been misspelled in the application.

Claims 2 and 7 have been amended herein to correct the spelling.

Thus claims 2 and 7 are in condition for immediate allowance and such action is respectfully requested.

Rejection of claim 10 under 35 USC 112

The examiner presently rejects claim 10 on the grounds that the term "small" is vague or subjective.

However, this is another term precisely defined by the application. In particular, at page 38, lines 1 and 2:

The phrase selecting molecular forms of minerals having small size, as used herein, refers to the size of the molecules as compared to the size of molecular forms such as oxides.

Thus the term "small" is defined by the detailed disclosure, claim 1 0 is in condition for immediate allowance and such action is respectfully requested.

Rejection of claim 12 under 35 USC 112

The examiner presently rejects claim 12 for use of the term "cellularly active" which the examiner states is vague. However, the term is defined and discussed at length in the original

application.

At the fourth paragraph of the Detailed Disclosure, the applicant defines "cellularly active" in terms of metabolization required before the final and usable form is reached:

> Forms of agents which require reduced metabolization, ideally, no metabolization, by the body of the patient are also called "active agents", "cellularly active" or "cellularly active agents" herein.

Overall, the term is discussed in the disclosure, with examples, definitions, advantages, etc in no less than a dozen different occurrences, and the applicant will not risk prolixity by quoting them.

Thus claim 12 is in condition for immediate allowance and such action is respectfully requested.

Rejection of claims 14 and 15 under 35 USC 112

The examiner has correctly pointed out that a plural form of "sulfate" is used.

The correct singular form has been inserted.

Thus claims 14 and 15 are in condition for immediate allowance and such action is respectfully requested.

Rejection of claim 19 under 35 USC 112

The examiner has correctly pointed out that the term "riboflavin-5-phosphate" is

misspelled in claim 19.

The correct spelling has been inserted and the misspelling removed.

Thus claim 19 is in condition for immediate allowance and such action is respectfully requested.

Rejection of claims 22 and 25 under 35 USC 112

The examiner presently rejects claims 22 and 25 for use of the phrase "medication suitable for intravenous administration." The applicant has stricken the offending phrase in the currently amended claims, and substituted "intravenous medication". Since intravenous medications are often structurally very different from oral medications, direct injection medications, etc, this is a definite limitation. (For example, molecules above a certain size (atomic weights of several hundred or several thousand) will not easily pass through a needle.) The disclosure is replete with discussions of why intravenous medication is necessary for efficient use of the medication by the bodies of substance abusers, for example, pages 21, 22, and 23 to line 8.

Thus claims 22 and 25 are in condition for immediate allowance and such action is respectfully requested.

Rejection of claim 27 under 35 USC 112

The examiner presently rejects claim 27 for the language "preferably" and what follows. The offending phrase has been stricken from claim 27.

For this reason, claim 27 is in condition for immediate allowance and such action is

respectfully requested.

Rejection of claims 1-19, 21-27, and 29 under 35 USC 102(b)

The examiner presently rejects these claims as being anticipated by US Patent No. 3,697,287 to Winitz, hereinafter "the '287 patent".

Firstly, at the most basic level, a food cannot stand as prior art against an anti-craving composition for drug abusers: it is simply non-analogous prior art.

The present invention teaches a medication, not a food, and it teaches the importance of intravenous injection via saline drip.

Large sections of the detailed disclosure of the present invention teach away from oral administration. The present invention repeatedly explains the crucial importance of avoiding the damaged gastrointestinal system of drug abuse patients. These same references repeatedly argue the importance of the IV administration of the current invention. For example, page 17, lines 17 et seq:

> Another important feature of the present invention is the application of medications over an extended period of time by means of IV drip rather than a single administration orally or by direct injection. Another important feature of the present invention is the careful compounding of the liquid components of the invention, each of which contains several active agents, so as to present as little challenge as possible to administration of the medication by IV drip.
>
> Liver diseases most commonly associated with alcohol abuse strike the liver of

users of many commonly abused substances. The liver filters out toxins, be they ethanol, cocaine metabolites, anabolic steroids, or any other substances. The results are cirrhosis and fibrosis, (gradual replacement of liver tissues with fat and connective matter), hepatitis and inflammation, portal hypertension, infection of the lobules, and other conditions. The net result is badly degraded liver function, resulting in difficulty metabolizing amino-acids and vitamins which the liver of a healthy individual would not have any difficulty breaking down into the proper form.

One quite long passage beginning at page 21, line 16 and running for all of page 22 and onto page 23 until line 8, begins:

"Diseases of the stomach lining and intestinal lining are also quite common in substance abusers. Alcohol releases free radicals on ingestion..."

and ends:

"...Combined with an often chronically inflamed stomach/intestinal lining, the practical result is that the time available for ingestion of medications by the digestive system of a real-world patient is often much lower than the time available in the digestive system of a theoretical "healthy" substance abusing individual."

This is too long to quote in its entirety without risk of prolixity. That passage concerns the numerous serious gastrointestinal problems associated with drug abuse, and the examiner is invited to read that passage and to consider that oral administration of the "food" of the '287 reference would suffer all of the problems discussed in great detail therein, would not serve as an

anti-craving medication for that reason, and would not meet the limitation of intravenous injection of claims 1 and 29 as currently amended. (The applicant has currently amended claims 1 and 29 (the independent claims of the invention) to state that they are intravenous medications.)

The examiner is not free to state that a crucial structural limitation of an invention is "mere intended use". A food is not in any sense an intravenous medication and it would be either impossible or disastrous to inject many foods into a human being intravenously. Without considerable prior medical analysis, it would be foolhardy to conclude that the oral food of the '287 reference is suitable or safe for intravenous injection. Thus, this is a structural limitation: a food is structurally not an intravenous medication.

In the case of the '287 patent food, the list of ingredients is so long that reaction of the various ingredients would be highly likely, changing their chemical formulas if placed together in an IV solution, thus producing unpredictable and unknown compounds and negating any possibility of IV administration into the veins of a drug abuser. This very problem, in fact, confronted the inventors of the present invention, and is discussed in the present application disclosure and dealt with in the claims thereof. At page 31, line 19 et seq (onto page 32) of the original application:

> However, medical solutions containing multiple active ingredients must be carefully compounded to avoid engendering new problems. Different active ingredients may react with each other in unpredictable ways inside the vials of medication during storage. One problem is precipitation of the agents in the liquid medication, calcium, in addition to its other undesirable properties, is prone to precipitation. Another problem is direct reaction

of the agents with each other. A sister problem with multiple agent formulas is chelation, that is, metallization of another product such as a carbon-based molecule. The resulting precipitated or combined or metal-organic chemical or salt usually no longer has the desired medicinal properties, may no longer be suitable (small enough) to pass through the cannula of the IV needle, and may even be dangerous to the patient if administered. Other reactions can occur. For these reasons, it is a further challenge in this area to select and group active agents which can be safely combined and conveniently stored with a minimized risk of chelation or other undesirable reactions.

The '287 patent makes no mention whatsoever of these problems with intravenous injection because the '287 patent teaches nothing relevant to intravenous injection, does not teach vials, does not discuss medicinal properties and thus it lacks structural limitations ("intravenous medication") of the present invention.

The '287 patent teaches a food composition not for intravenous injection. This is stated in the title of that reference ("AMINO ACID FOOD COMPOSITION"), in frequent references to "diet" (see for example col. 2, lines 67 et seq.), and references to how it is consumed.

This last point argues away from the intravenous limitation yet again. The '287 patent teaches towards a food, which by definition is to be eaten, i.e. ingested orally. In addition to the plain meaning of the word "food", the '287 patent refers at col. 3, line 47 and col. 4, line 43 to the food being "palatable", a word applying only to eaten substances. At col. 3, line 59, there is reference to "objectionable tastes" of prior art to the '287 patents, while from col. 4 line 1 to col. 4 line 63 (that, nearly the entirety of col. 4) the discussion concerns the taste of the food product.

Such taste considerations in fact comprise the bulk of the detailed disclosure of the '287 reference.

Considerations of "taste" would be pointless if the '287 reference actually taught any medical usage (taste is not an important factor even for oral medications), and would be doubly pointless if the '287 reference taught any intravenous medication.

In short, the '287 patent teaches away from any intravenous usage, and away from any combination with any intravenous substance, and away from combination with any medication.

The applicant notes that there are certain vague references to a "liquid diet", i.e. col. 10, line 74 through col. 11 line 32, which also discuss the "aqueous portion of the diet". The applicant is unaware of any suggestion that this drink (?) be made into an anti-craving medication, and reiterates that the '287 reference teaches away from intravenous usage, and thus teaches away from any combination with any intravenous substance.

The applicant also notes references to large amounts of glucose in the food of the '287 reference, amounts such as 570 grams, 592 grams, 555 grams, 400 grams (Tables I, II, III and IV). These amounts teach clearly towards a food, but more importantly, preclude any medicinal use of analogous to that of the invention.

This is stated in the application as originally filed, at page 33 line 2 et seq:

> Glucose and fructose solutions are not feasible for use in administering via IV drip multiple amino-acid medicines. First, the sugars "spike" the levels of the neurotransmitters in the brain much like the abused substance (sugar is often considered to be an abused substance itself quite apart from the fact that alcohols are sugars), thus

included sugars would function as "agonists", reducing the craving temporarily by briefly satisfying it rather than by returning the brain to normal functioning. Second, fructose and glucose act much like calcium does, driving amino-acids into the muscle tissues rather than across the blood/brain barrier, and furthermore this undesirable activity is promoted by the presence of chromium and niacin, which are important agents for other reasons. Thus a saline solution is preferred...

Certain dependent claims (claims 26 and 27) claim the saline solution, and thus stand patentable by themselves.

Since the '287 reference fails to teach medication (it teaches food, a non-analogous art) and since the '287 reference teaches away from intravenous injection (it repeatedly teaches ingestion), and since the '287 reference teaches away from a saline solution (it teaches a glucose solution) and since it lacks any suggestion that it be combined with any intravenous prior art, it cannot stand as a reference either for novelty nor combined with any other art for obviousness.

For all these reasons, claims 1 through 27 and 29 are in condition for immediate allowance, and such action is earnestly requested.

Rejection of claims 1-27, and 29 under 35 USC 103(a)

The examiner presently rejects the listed claims under 35 USC 103 combining the '287 reference with US Patent No. 4,337,246 to Iwagiri et al, hereinafter "the '246 reference".

As note previously, the '287 reference teaches away from intravenous use and towards oral injection.

The '246 reference also teaches away from any intravenously administrable medication. The title of the '246 reference emphasizes this point: "SOLID PREPARATION COMPRISING COBAMAMIDE OR MECOBALAMIN". Solids (granules and other forms are specified by the '246 application at col. 2, lines 53 et seq) cannot be passed through the tiny cannula of a needle and thus this reference cannot teach intravenous injection.

Thus, the '246 reference lacks the same key structural limitation as the '287 reference. The examiner must find a suggestion that these two items be combined, yet no suggestion is made in the first office action. Even if the two items are combined, they still lack the important intravenous medication limitation and thus even the combination cannot stand.

For all these reasons, claims 1 through 27 and 29 are in condition for immediate allowance, and such action is earnestly requested.

Conclusion

For all the foregoing reasons, applicant respectfully urges that the application is now in condition for immediate allowance, and such action is requested. The examiner is respectfully urged to contact applicant's counsel, Craig W. Barber, PO Box 16220, Golden, Colorado, 80402-6004, 303-278-9973, fax 303-278-9977, with any questions or comments.

Signed: 

Craig W. Barber
USPTO No. 39,102
303-278-9973
PO Box 16220
Golden, Colorado 80402-6004